Chapter 24

The Immune System

Chapter Objectives

Opening Essay

Describe the functions of neutrophils.

Innate Immunity

24.1 Describe the nature of innate defenses in invertebrates and vertebrates.

24.2 Describe the steps of the inflammatory response and explain how they help to prevent the spread of disease.

24.3 Describe the structure and functions of the lymphatic system.

Adaptive Immunity

24.4 Describe the specific nature of adaptive immune system responses. Define the terms antigen, antibody, passive immunity, and active immunity.

24.5 Describe the development and functions of B lymphocytes and T lymphocytes. Define and distinguish between the humoral immune response and the cell-mediated immune response.

24.6 Describe the nature of antigens. Explain how an antigen and an antibody   
interact.

24.7 Describe the process of clonal selection and compare a primary immune   
response to a secondary immune response.

24.8 Describe the specific structure of an antibody and relate its shape to its   
functions.

24.9 Describe four effector mechanisms of the humoral immune system. Explain how antibodies work with innate defenses to form a complete defense system.

24.10 Describe the production and uses of monoclonal antibodies.

24.11 Describe the specific functions of helper T cells and how they interact with   
other cells.

24.12 Explain how cytotoxic T cells destroy infected body cells.

24.13 Explain how HIV infects cells, multiplies, and causes disease.

24.14 Explain why it has been difficult to develop a successful treatment for AIDS.

24.15 Explain how the immune system identifies the body’s own molecules and how this system complicates organ transplantations.

Disorders of the Immune System

24.16 Describe how the malfunction or failure of the immune system can cause   
disease.

24.17 Explain why allergies occur and what causes anaphylactic shock.